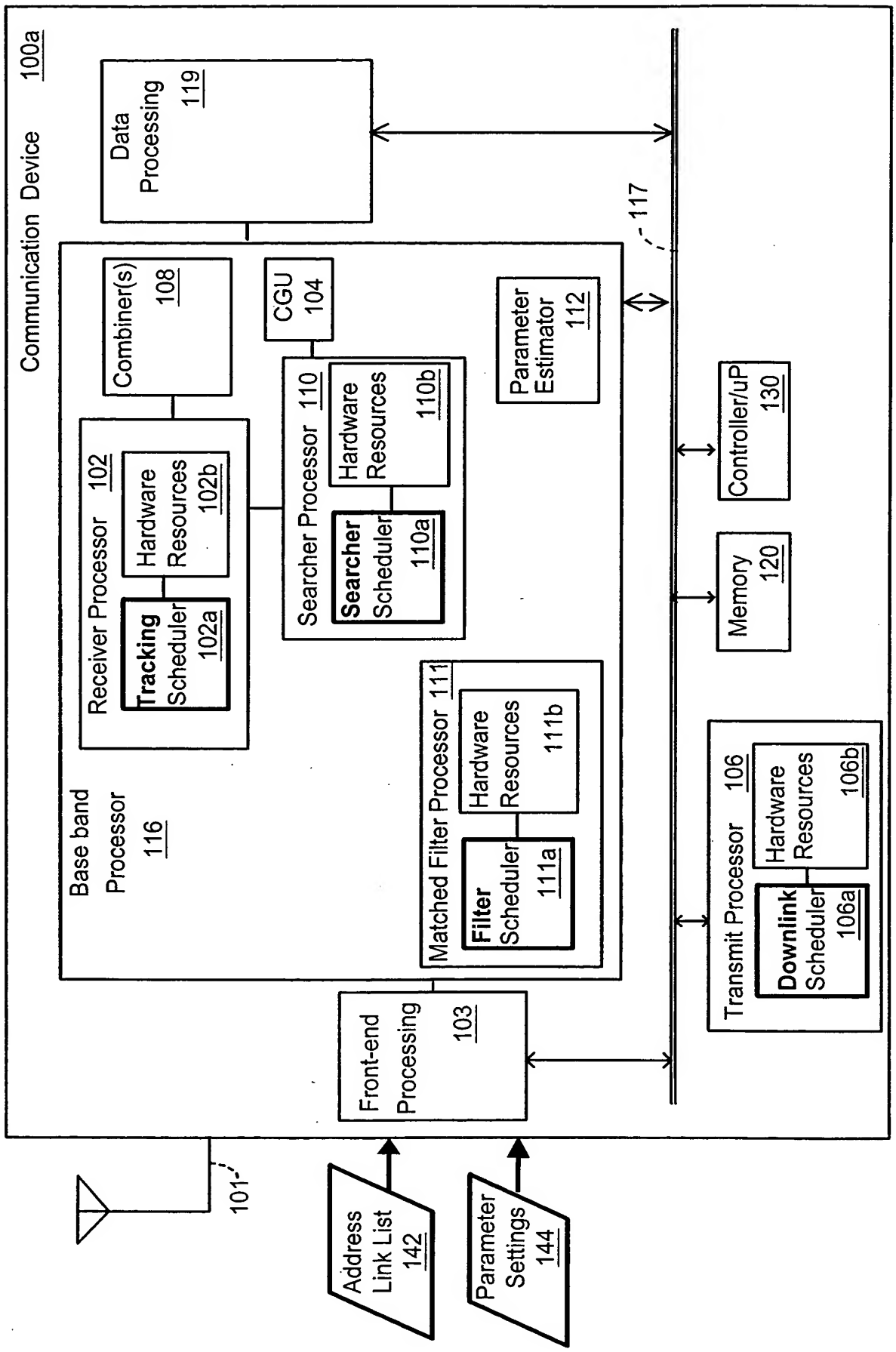

Communication Device 100a
Data Processing 119
117
Combiner(s) 108
CGU 104
Parameter Estimator 112
Receiver Processor 102
Hardware Resources 102b
Tracking Scheduler 102a
Searcher Processor 110
Hardware Resources 110b
Searcher Scheduler 110a
Base band Processor 116
Matched Filter Processor 111
Hardware Resources 111b
Filter Scheduler 111a
Controller/uP 130
Memory 120
Transmit Processor 106
Hardware Resources 106b
Downlink Scheduler 106a
Front-end Processing 103
101
Address Link List 142
Parameter Settings 144

FIGURE 1A

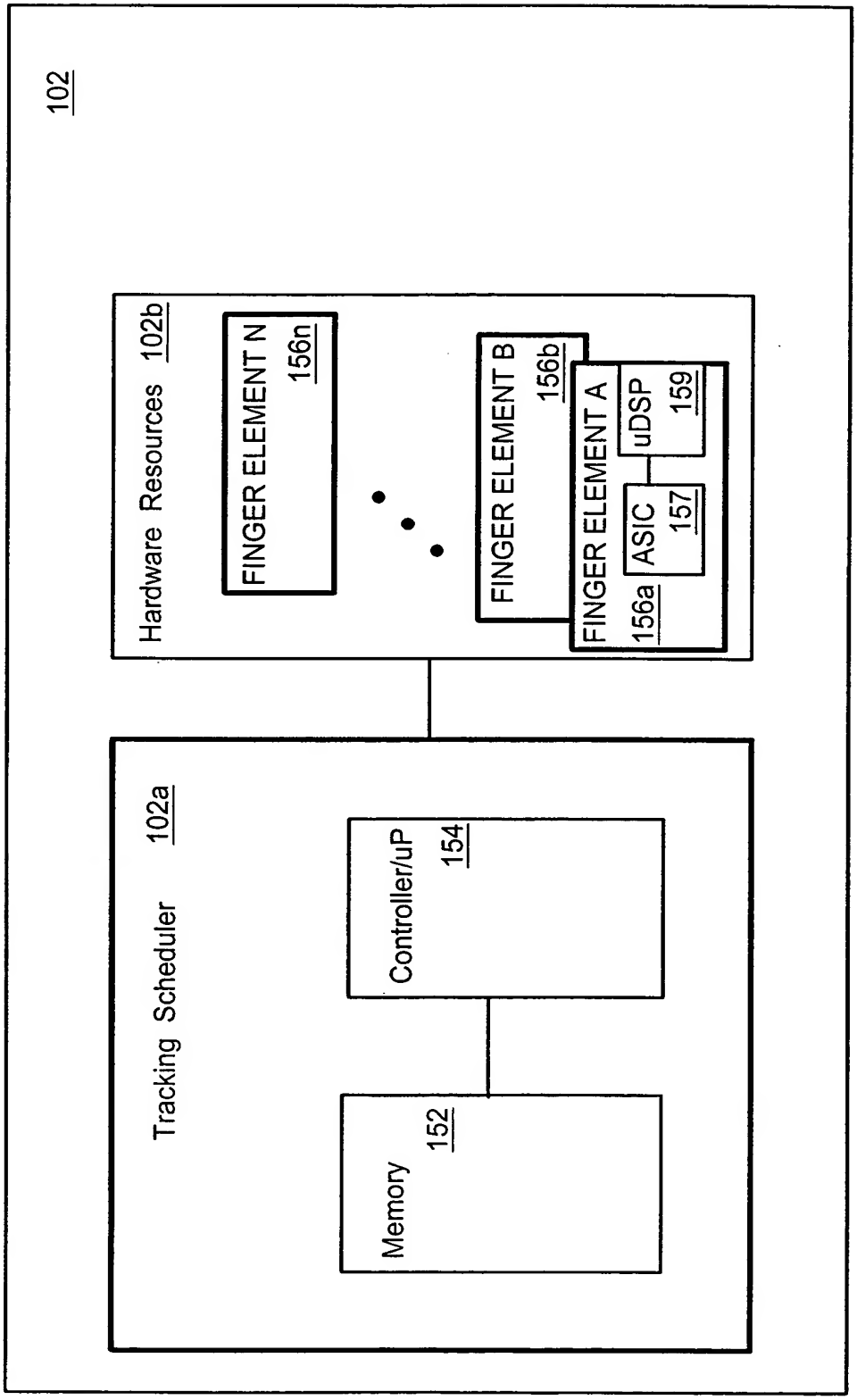

102
Hardware Resources 102b
FINGER ELEMENT N 156n
FINGER ELEMENT B 156b
FINGER ELEMENT A 156a
ASIC 157
uDSP 159
Tracking Scheduler 102a
Controller/uP 154
Memory 152

FIGURE 1B

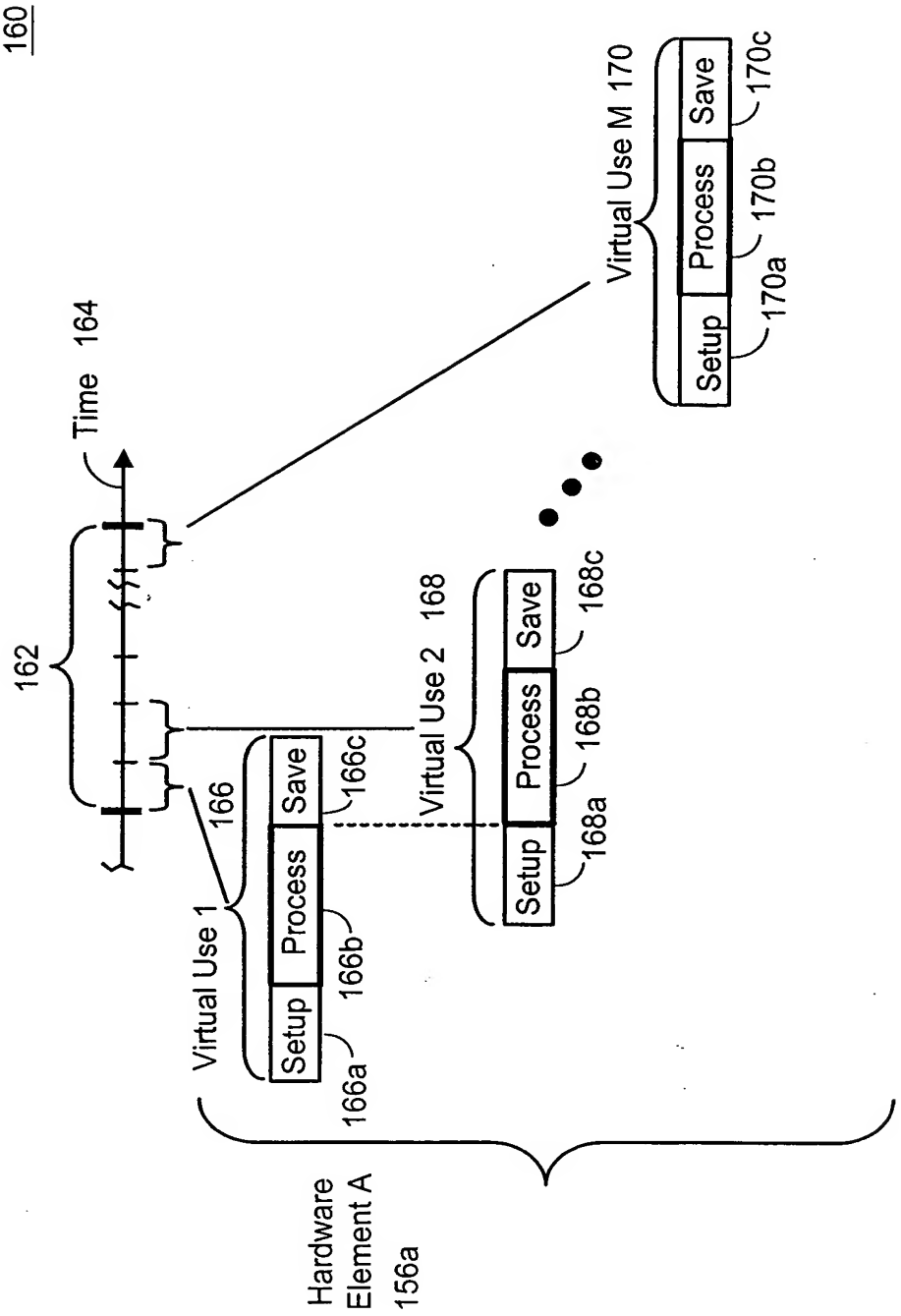

160
Time 164
162
Virtual Use 1
166
Setup
Process
Save
166a
166b
166c
Virtual Use 2 168
168a
168b
168c
Virtual Use M 170
170a
170b
170c
Hardware Element A 156a

FIGURE 1C

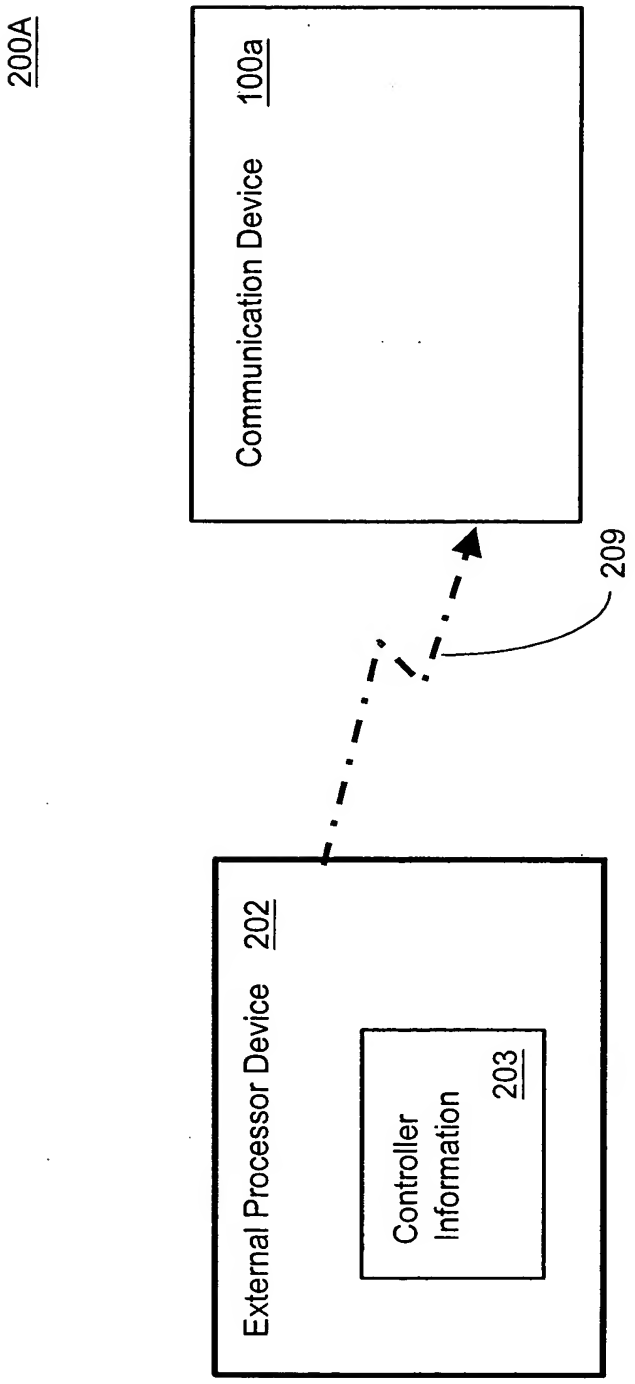

200A
Communication Device 100a
209
External Processor Device 202
Controller Information 203

FIGURE 2A

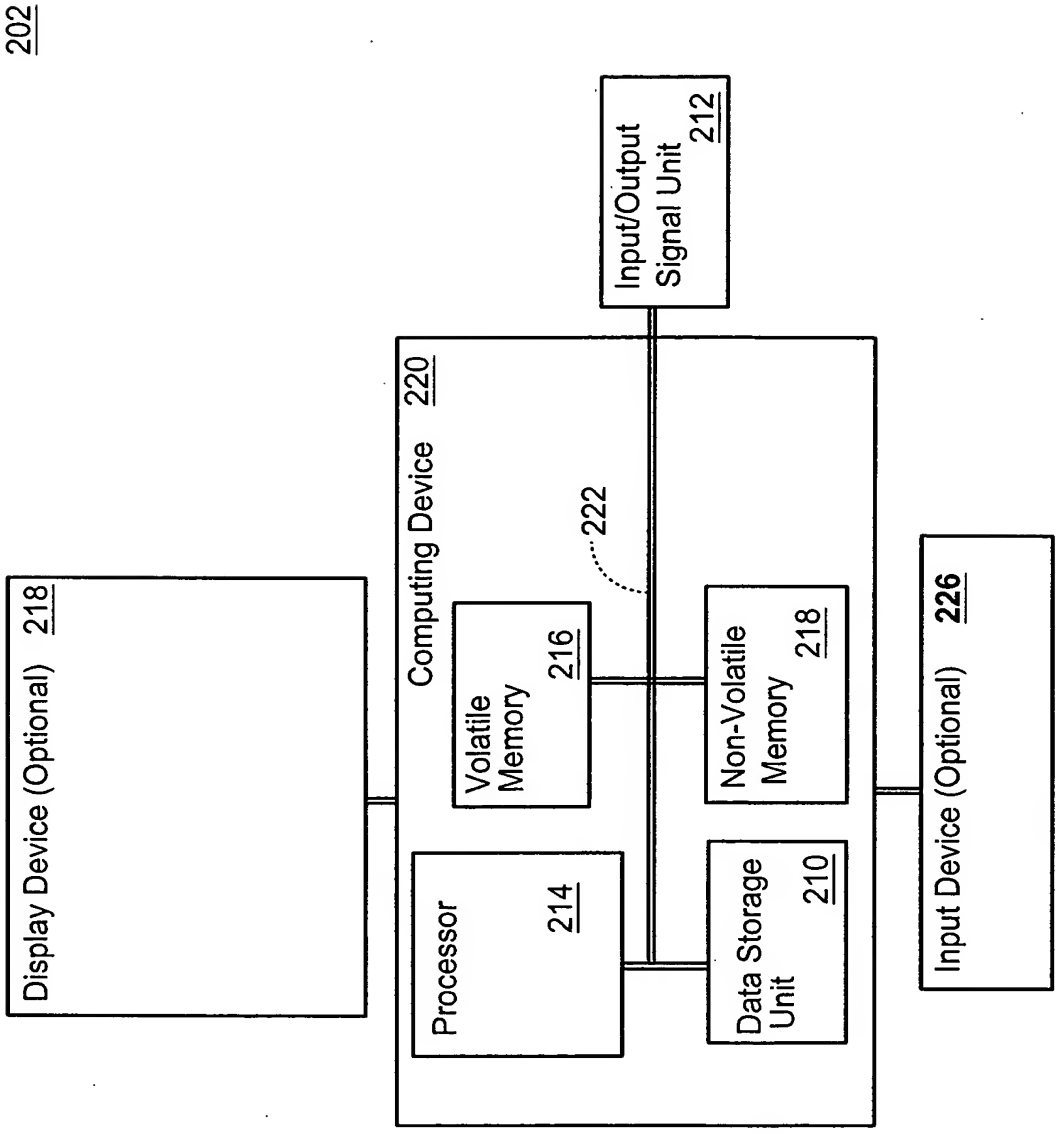

202
Display Device (Optional) 218
Computing Device 220
222
Input/Output Signal Unit 212
Volatile Memory 216
Non-Volatile Memory 218
Processor 214
Data Storage Unit 210
Input Device (Optional) 226

FIGURE 2B

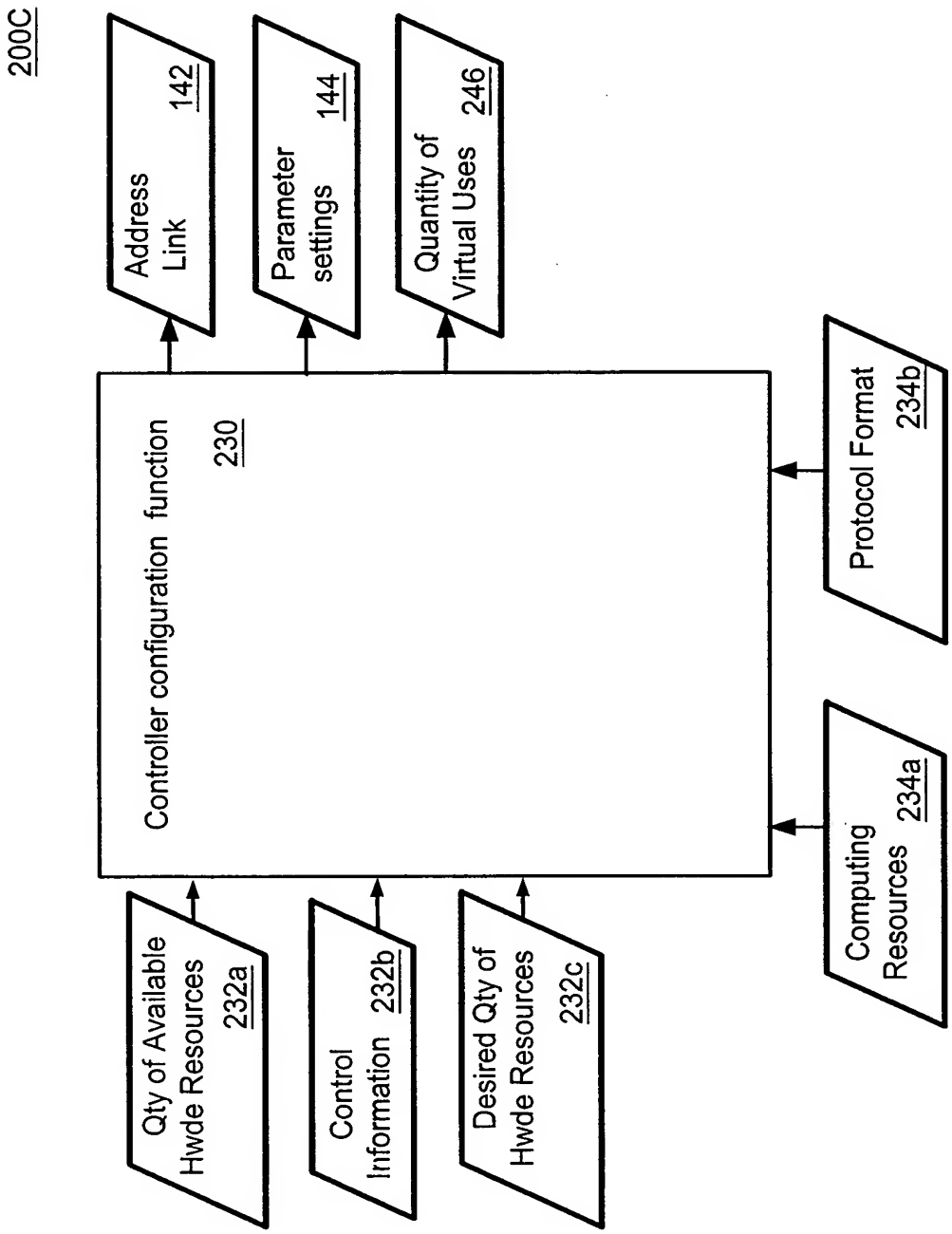

200C
Address Link 142
Parameter settings 144
Quantity of Virtual Uses 246
Controller configuration function 230
Protocol Format 234b
Computing Resources 234a
Qty of Available Hwde Resources 232a
Control Information 232b
Desired Qty of Hwde Resources 232c

FIGURE 2C

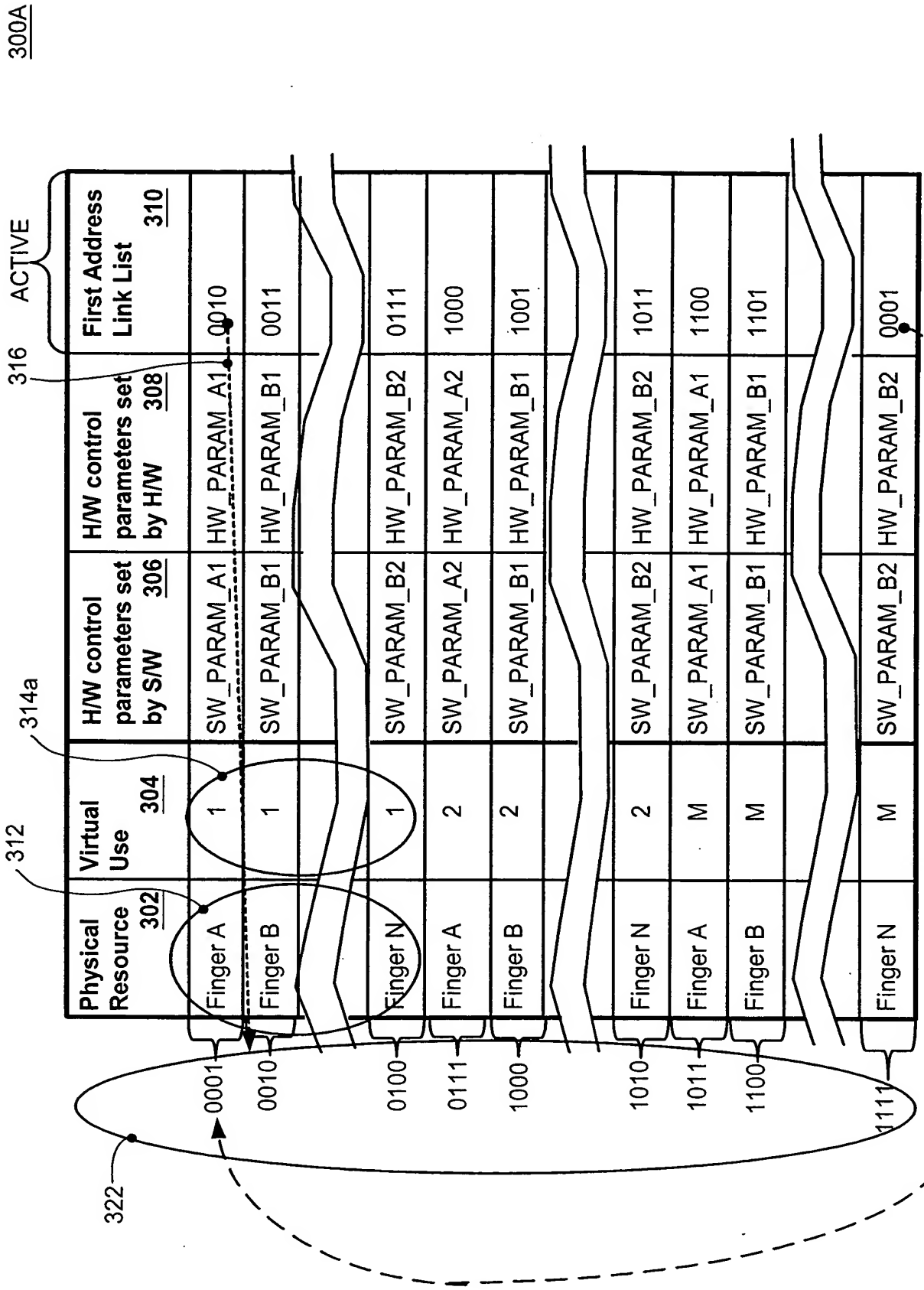

300A
ACTIVE
316
312
314a
317
322
Physical Resource 302
Virtual Use 304
H/W control parameters set by S/W 306
H/W control parameters set by H/W 308
First Address Link List 310
Finger A 1 SW_PARAM_A1 HW_PARAM_A1 0010
Finger B 1 SW_PARAM_B1 HW_PARAM_B1 0011
Finger N 1 SW_PARAM_B2 HW_PARAM_B2 0111
Finger A 2 SW_PARAM_A2 HW_PARAM_A2 1000
Finger B 2 SW_PARAM_B1 HW_PARAM_B1 1001
Finger N 2 SW_PARAM_B2 HW_PARAM_B2 1011
Finger A M SW_PARAM_A1 HW_PARAM_A1 1100
Finger B M SW_PARAM_B1 HW_PARAM_B1 1101
Finger N M SW_PARAM_B2 HW_PARAM_B2 0001
0001
0010
0100
0111
1000
1010
1011
1100
1111

FIGURE 3A

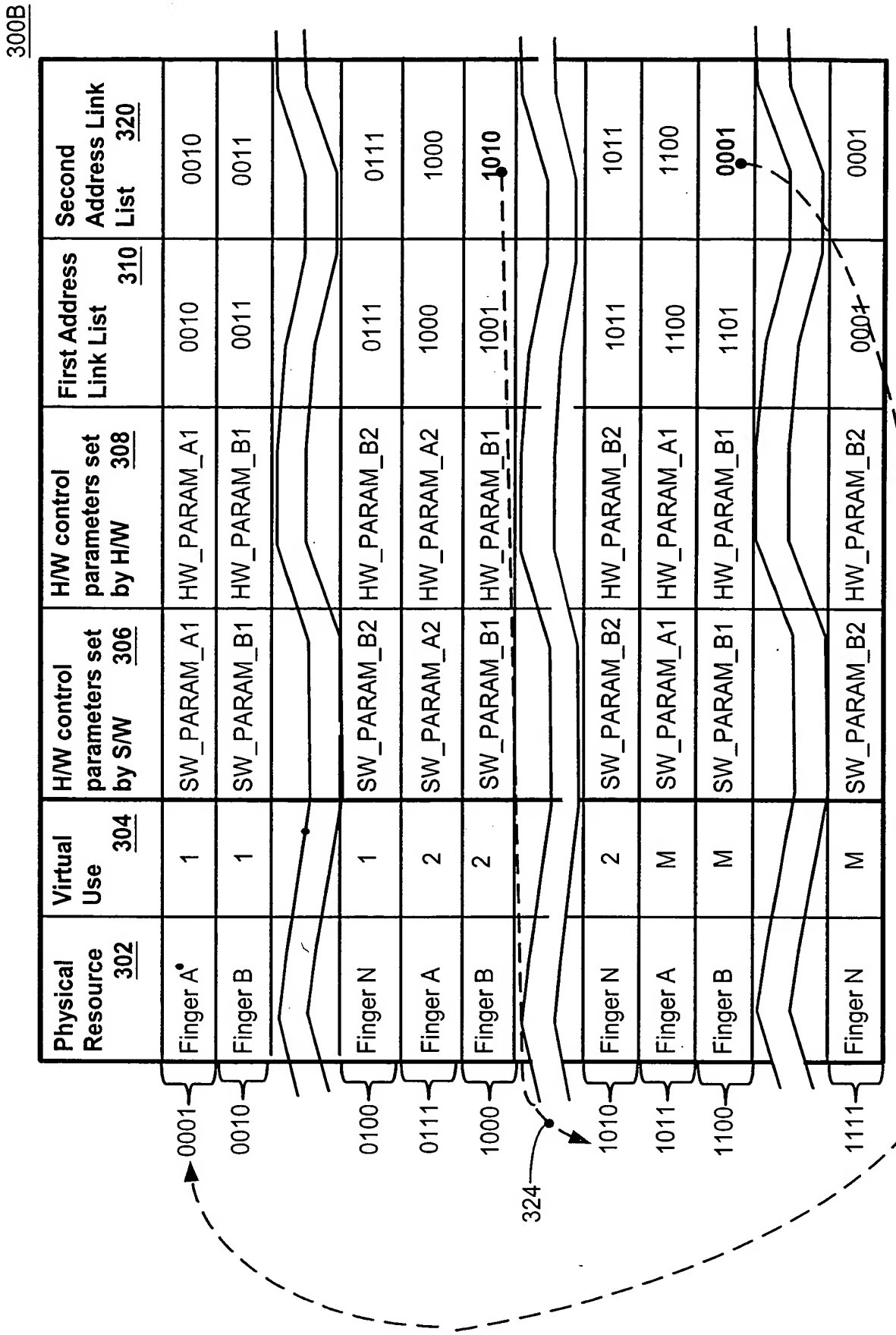
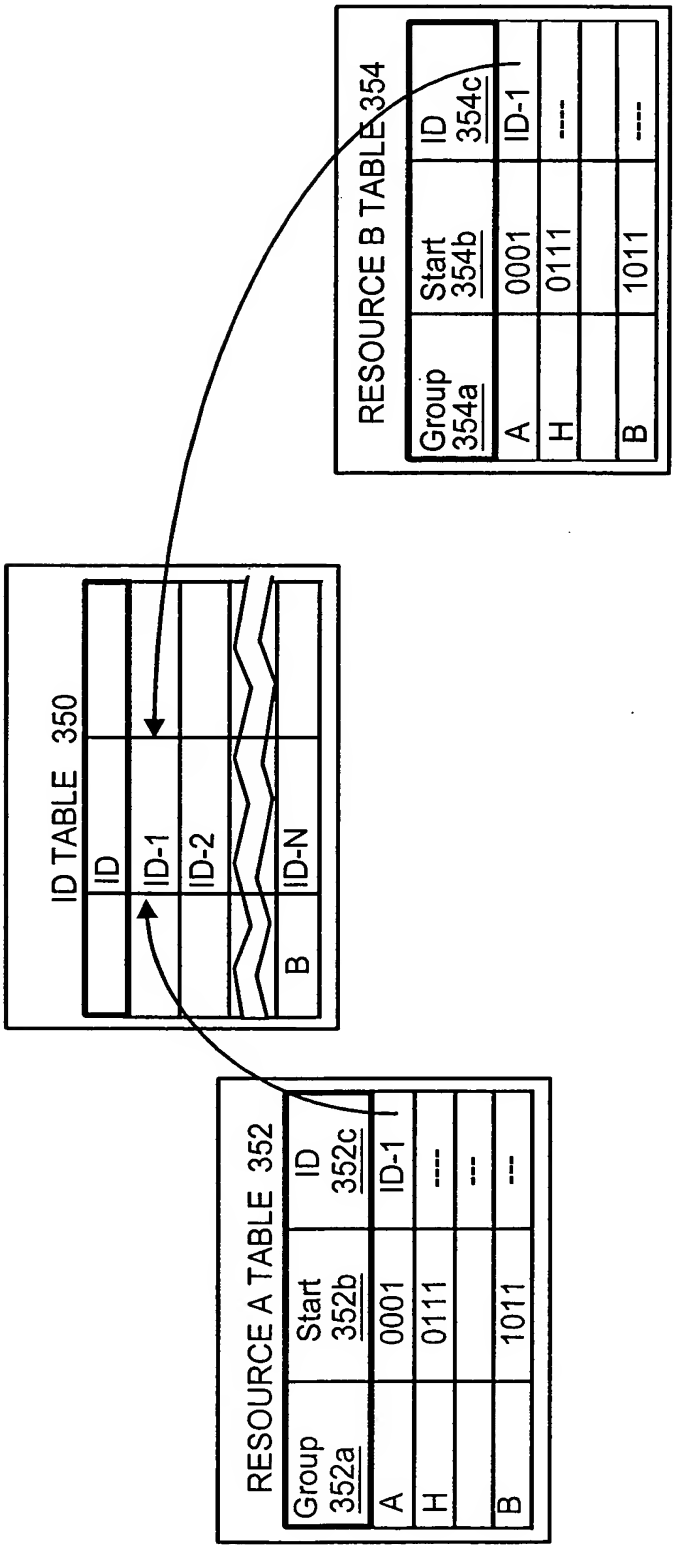

300B
Physical Resource 302
Virtual Use 304
H/W control parameters set by S/W 306
H/W control parameters set by H/W 308
First Address Link List 310
Second Address Link List 320
Finger A
Finger B
Finger N
Finger A
Finger B
Finger N
Finger A
Finger B
Finger N
1
1
2
2
M
M
M
SW_PARAM_A1
SW_PARAM_B1
SW_PARAM_B2
SW_PARAM_A2
SW_PARAM_B1
SW_PARAM_B2
SW_PARAM_A1
SW_PARAM_B1
SW_PARAM_B2
HW_PARAM_A1
HW_PARAM_B1
HW_PARAM_B2
HW_PARAM_A2
HW_PARAM_B1
HW_PARAM_B2
HW_PARAM_A1
HW_PARAM_B1
HW_PARAM_B2
0010
0011
0111
1000
1001
1011
1100
1101
0001
0001
0010
0011
0111
1000
1010
1011
1100
0001
0001
0100
1010
1011
1100
1111
324
326

FIGURE 3B

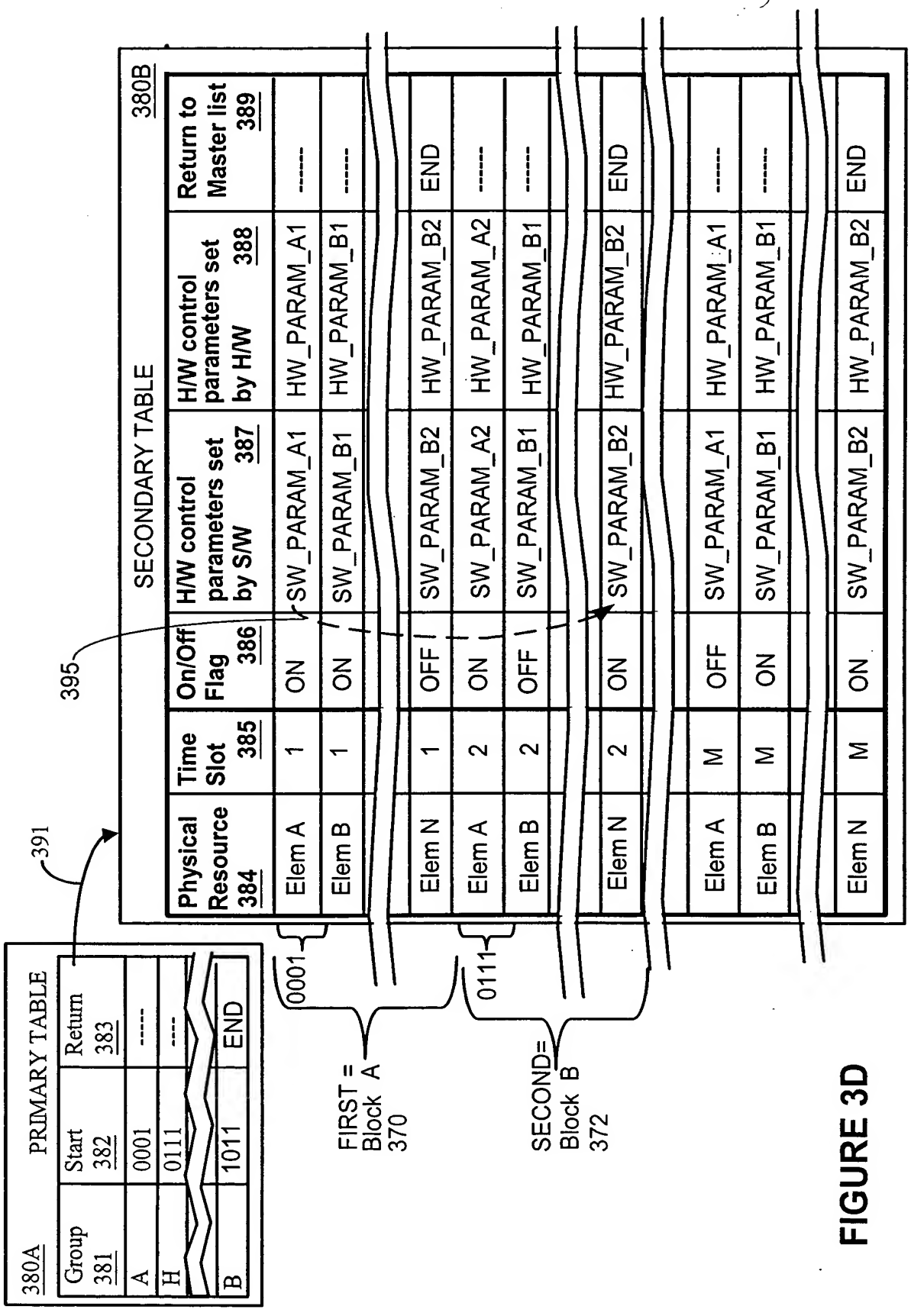

RESOURCE B TABLE 354
Group 354a
Start 354b
ID 354c
A
0001
ID-1
H
0111

B
1011

ID TABLE 350
ID
ID-1
ID-2
ID-N
B
RESOURCE A TABLE 352
Group 352a
Start 352b
ID 352c
A
0001
ID-1
H
0111

B
1011

FIGURE 3C


380A
PRIMARY TABLE
Group 381
Start 382
Return 383
A
0001

H
0111

B
1011
END
391
395
SECONDARY TABLE
380B
Physical Resource 384
Time Slot 385
On/Off Flag 386
H/W control parameters set by S/W 387
H/W control parameters set by H/W 388
Return to Master list 389
Elem A
Elem B
Elem N
1
2
M
ON
OFF
SW_PARAM_A1
SW_PARAM_B1
SW_PARAM_B2
SW_PARAM_A2
HW_PARAM_A1
HW_PARAM_B1
HW_PARAM_B2
HW_PARAM:A1

END
0001
0111
FIRST = Block A 370
SECOND= Block B 372

FIGURE 3D

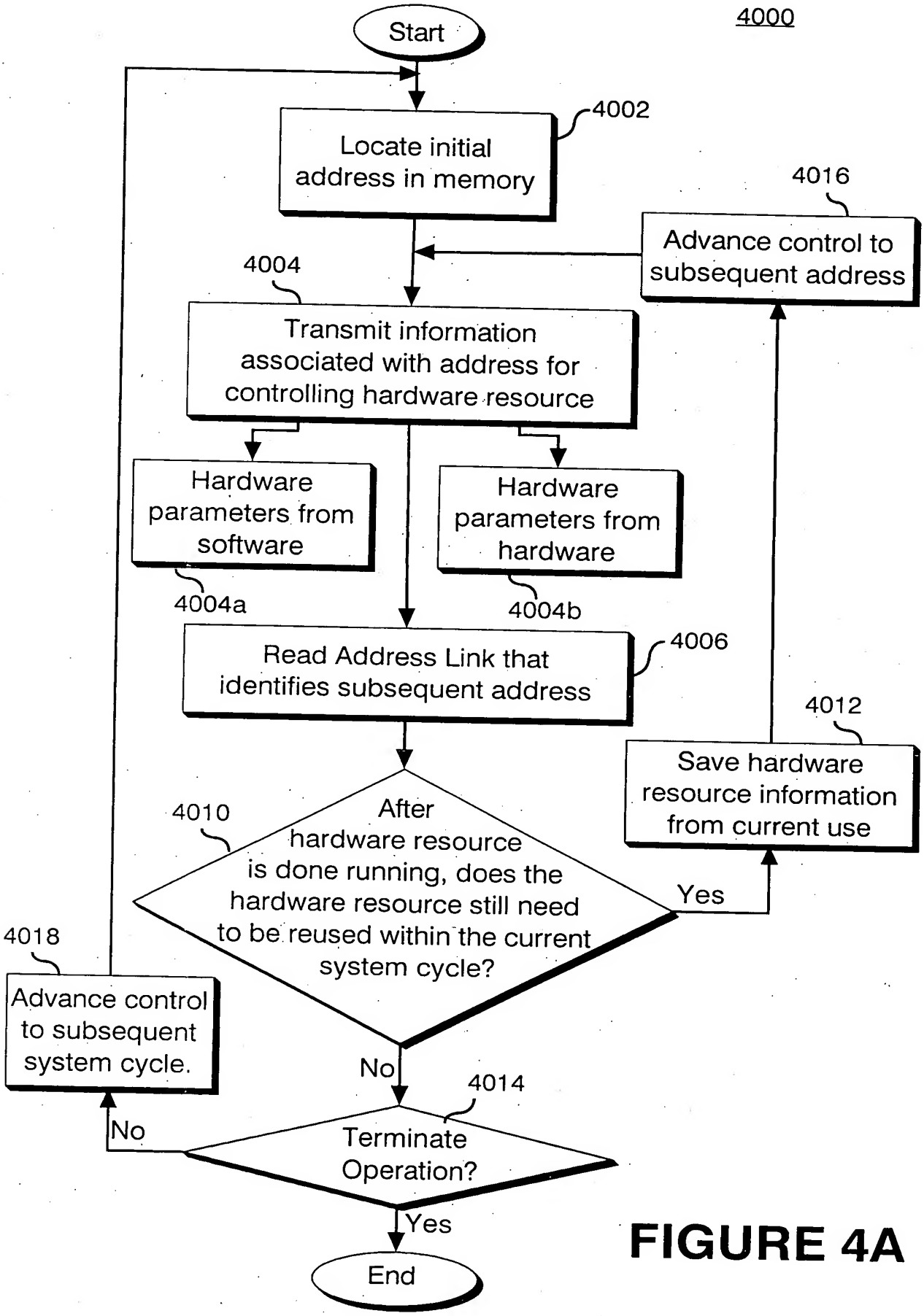

4000
Start
4002
Locate initial address in memory
4016
Advance control to subsequent address
4004
Transmit information associated with address for controlling hardware resource
Hardware parameters from software
4004a
Hardware parameters from hardware
4004b
4006
Read Address Link that identifies subsequent address
4012
Save hardware resource information from current use
4010
After hardware resource is done running, does the hardware resource still need to be reused within the current system cycle?
Yes
4018
Advance control to subsequent system cycle.
No
4014
No
Terminate Operation?
Yes
End

FIGURE 4A

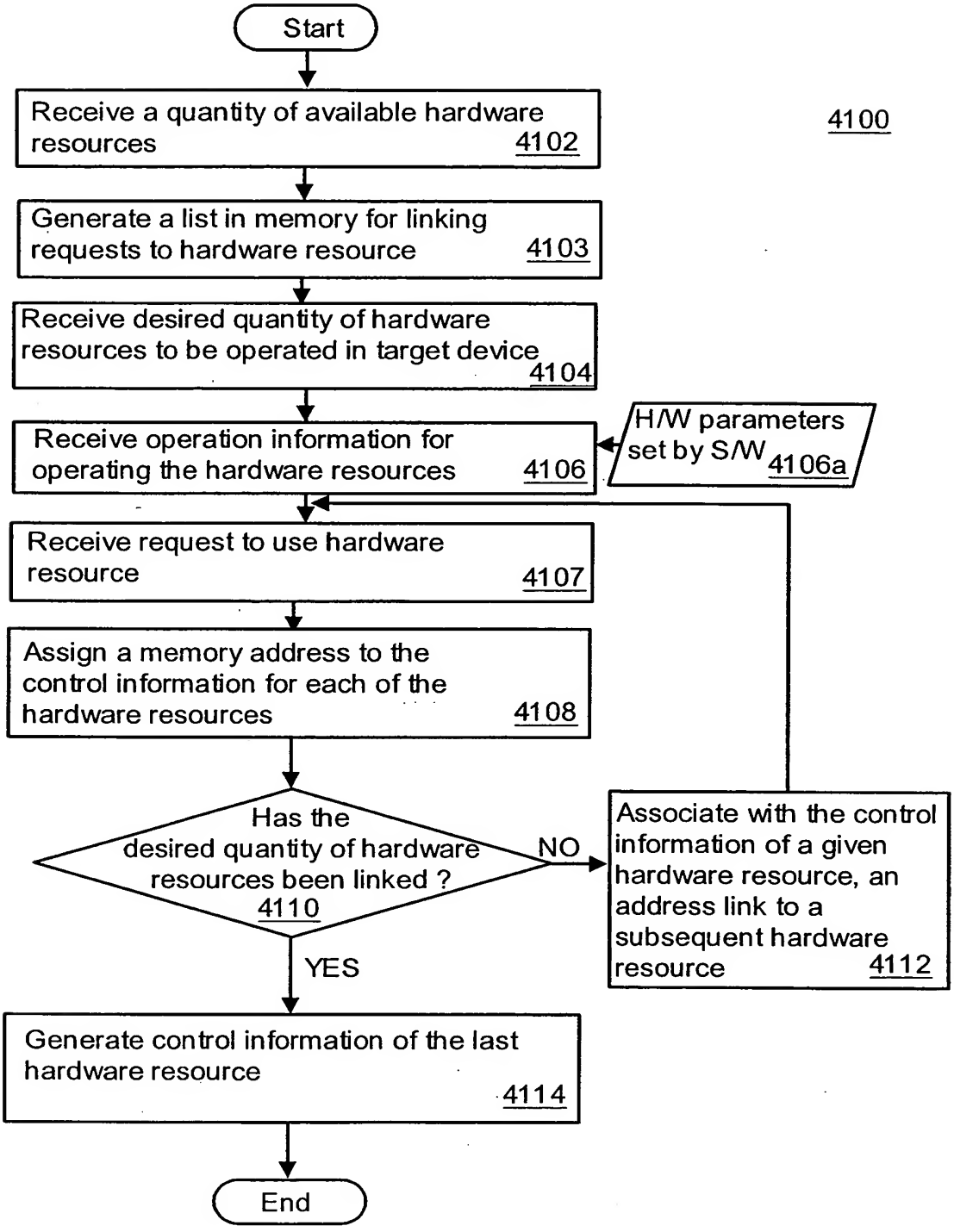

Start
Receive a quantity of available hardware resources 4102
4100
Generate a list in memory for linking requests to hardware resource 4103
Receive desired quantity of hardware resources to be operated in target device 4104
Receive operation information for operating the hardware resources 4106
H/W parameters set by S/W 4106a
Receive request to use hardware resource 4107
Assign a memory address to the control information for each of the hardware resources 4108
Has the desired quantity of hardware resources been linked ? 4110
NO
Associate with the control information of a given hardware resource, an address link to a subsequent hardware resource 4112
YES
Generate control information of the last hardware resource 4114
End

FIGURE 4B

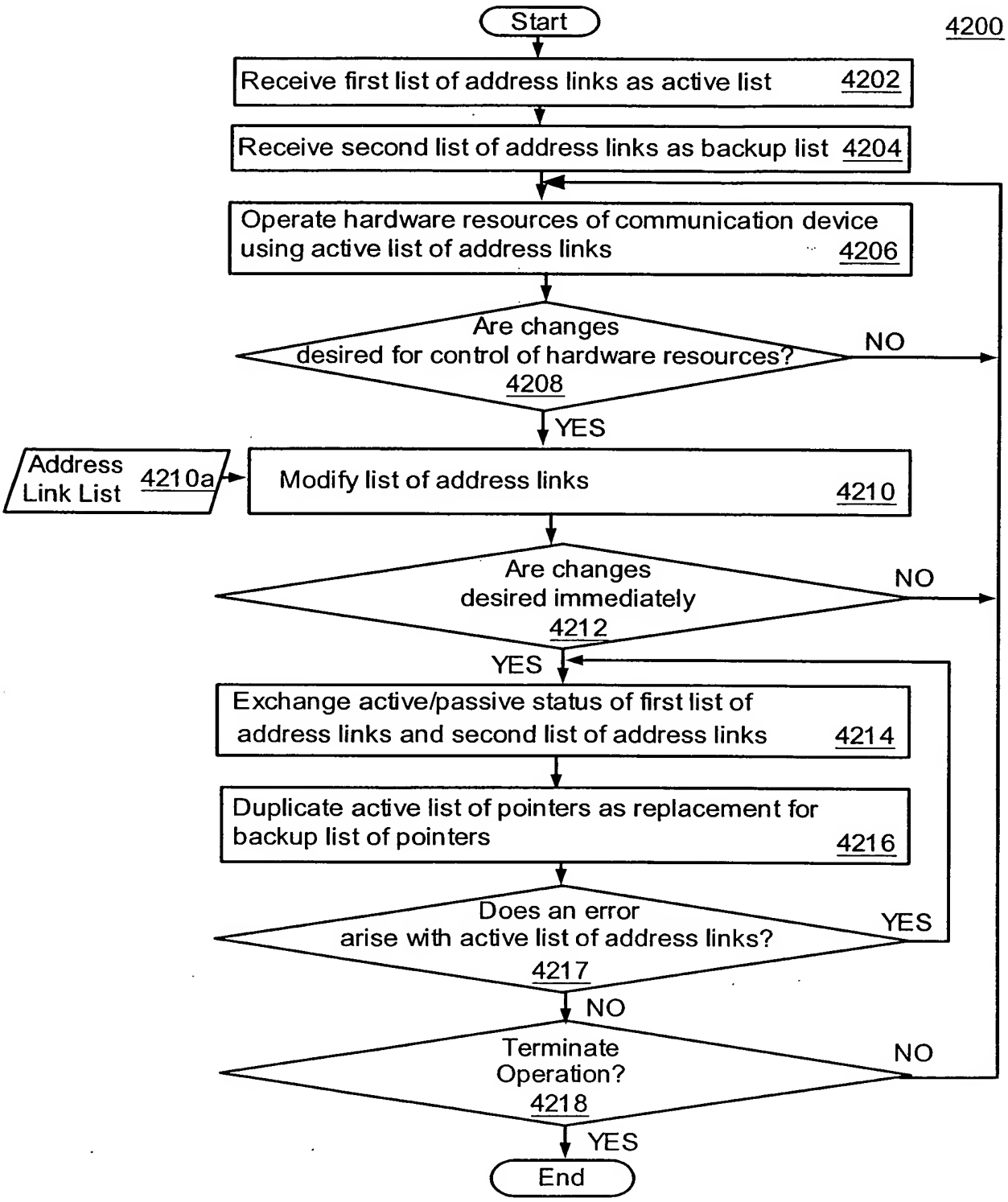

Start
4200
Receive first list of address links as active list 4202
Receive second list of address links as backup list 4204
Operate hardware resources of communication device using active list of address links 4206
Are changes desired for control of hardware resources? 4208
NO
YES
Address Link List 4210a
Modify list of address links 4210
Are changes desired immediately 4212
NO
YES
Exchange active/passive status of first list of address links and second list of address links 4214
Duplicate active list of pointers as replacement for backup list of pointers 4216
Does an error arise with active list of address links? 4217
YES
NO
Terminate Operation? 4218
NO
YES
End

FIGURE 4C